Amendments to the Claims

1. (Currently Amended) A system for evaluating the quality of an audio test signal derived from an audio reference signal by coding and decoding, said audio test signal and said audio reference signal each comprising a plurality of channels, each channel being adapted to be made audible by one loudspeaker of a plurality of loudspeakers which are positioned at different positions in an at least fictitious room, and two listening reference points being defined with respect to the positions of the plurality of loudspeakers, said system comprising:

a unit for converting the audio reference signal into a first audio reference sum signal at the first reference point and into a second audio reference sum signal at the second reference point and for converting the audio test signal into a first audio test sum signal at the first reference point and into a second audio test sum signal at the second reference point, wherein the first and the second reference points are different from each other,

wherein the unit for converting includes:

a weighting device for weighting each channel using a respective transfer function between the respective loudspeaker and the reference point in question to obtain weighted channels, and

an adding device for each reference point, the adding device for the first reference point being adapted to add weighted channels generated using transfer functions between the loudspeakers and the first reference point, and the adding device for the second reference point being adapted to add weighted channels generated using transfer functions between the loudspeakers and the second reference point so as to obtain an audio reference sum signal and an audio test sum

signal for each reference point; and

a unit for evaluating the quality of the audio test sum signals output by the adding devices while taking into consideration the audio reference sum signals output by the adding devices so as to provide an indication of the quality of the audio test signal.

2. (Original) A system according to claim 1, wherein the transfer functions between the respective loudspeakers and the respective reference points are individual head-related transfer functions so as to take into account the different impulse responses for different sound incidence directions into the human ear.

3. (Currently Amended) A system according to claim ~~2~~1, wherein the transfer functions between the respective loudspeakers and the respective reference points are mean head-related transfer functions (HRTFs) obtained by averaging a large number of individuals.

4. (Currently Amended) A system according to claim 1, wherein the transfer function between the respective loudspeaker and the respective reference point is a transfer function which corresponds to ~~the~~ a convolution of ~~the~~ a head-related transfer function with a room impulse response in such a way that ~~the~~ sound reflections of ~~the~~ a room in which the plurality of loudspeakers and the two reference points are positioned are taken into account.

5. (Currently Amended) A system according to claim 1, wherein the transfer functions between the respective loudspeakers and the respective reference points are averaged transfer functions which are ~~the~~ a result of averaging individual transfer functions between fixed loudspeaker positions and varying positions of the reference points.

6. (Original) A system according to claim 1, wherein said conversion unit is arranged for providing transfer functions for various positions of said first and second reference points with respect to fixed loudspeaker positions) and wherein the quality-evaluating unit is arranged for providing the indication of the quality of the audio test signal for various transfer functions and for providing the positions of the reference points for the indication of the poorest quality.

7. (Currently Amended) A system according to claim 1, wherein the room is a standardized reference listening room and wherein the two reference points simulate ~~the~~ auditory organs of a test person at a reference listening position.

8. (Currently Amended) A system according to claim 1, wherein the room is a sound studio and wherein the two reference points simulate ~~the~~auditory organs of a test person at an arbitrary seated/standing position in said room.

9. (Original) A system according to claim 5, wherein the different positions of the first and second reference points deviate only slightly from a reference position so as to simulate a bearing movement of a test person.

10. (Original) A system according to claim 5, wherein the different positions of the first and second reference points deviate markedly from the reference position so as to simulate a rotation of the head of a test listener.

11. (Original) A system according to claim 1, wherein the audio test signal comprises eve channels, said five channels being a left rear, a right rear, a left front, a right front and a middle front channel.

12. (Original) A system according to claim 1, wherein the audio test signal is a stereo signal.

13. (Currently Amended) A system according to claim 1, wherein the ~~conversion unit~~ weighting device comprises an FIR filter for each loudspeaker/reference-point combination, the filter coefficients of each FIR filter being determined by the transfer function of the transmission path from the respective loudspeaker to the respective reference point;

wherein the adding device for the first reference point includes a first adder ~~for the first reference point~~ for adding the output signals of the FIR filters, which represent transmission paths to the first reference point, so as to provide the first audio test sum signal and the first audio reference sum signal, respectively; and

wherein the adding device for the second reference point includes a second adder ~~for the second reference point~~ for adding the output signals of the FIR filters, which represent a transmission path to the second reference point, so as to provide the second audio test sum signal and the second audio reference sum signal, respectively.

14. (Currently Amended) A method for evaluating the quality of an audio test signal derived from an audio reference signal by coding and decoding, said audio test signal and said audio reference signal each comprising a plurality of channels, each channel being adapted to be made audible by one loudspeaker of a plurality of loudspeakers which are positioned at different positions in an at least fictitious room, and two reference points being defined with respect to the positions of the plurality of loudspeakers, said method comprising the following steps:

converting the audio reference signal into a first audio reference sum signal at the first reference point and into a second audio reference sum signal at the second reference point, wherein the first and the second reference points are different from each other;

converting the audio test signal into a first audio test sum signal at the first reference point and into a second audio test sum signal at the second reference point;

the step of converting including

a step of weighting the ~~respective~~ each channels, which ~~can be~~ is ~~emitted~~ emittable by said plurality of loudspeakers, ~~with~~ using a respective transfer function between the respective loudspeaker and the reference point in question; and

a step of ~~superimposing~~ adding ~~the~~ weighted channels generated using transfer functions between the loudspeakers and the first reference point ~~at said first~~ and a step of adding weighted channels generated using transfer functions between the loudspeakers and the second reference point ~~at said second reference point~~ so as to obtain ~~the~~ an audio reference sum signals and ~~the~~ an audio test sum signals for each reference point; and

conducting the audio test sum signals and the audio reference sum signals to a unit for evaluating the quality of the audio test sum signals while taking into consideration the audio reference sum signals so as to obtain an indication of the quality of the audio test signal.

15. (Original) A method according to claim 14, wherein the following step precedes the step of converting:

obtaining the individual transfer functions between each loudspeaker and each reference point.

16. (Original) A method according to claim 15, wherein the step of obtaining comprises the following sub-steps:

exciting a loudspeaker with an excitation signal;

measuring the signal at each reference point;

determining the transfer function between the excited loudspeaker and the first reference point;

determining the transfer function between the excited loudspeaker and the second reference point; and

repeating the steps of exciting, measuring and determining until all the loudspeakers have been excited so as to obtain the individual transfer functions.

17. (Currently Amended) A method according to claim 16, wherein the first and second reference points are the ears of a human listener, which are provided with probe microphones.

18. (Original) A method according to claim 1 B, wherein the first and second reference points are built-in microphones of an artificial head.

19. (Original) A method according to claim 16, wherein the excitation signal is pseudo-noise signal.

20. (Currently Amended) A method according to claim 15, wherein the step of obtaining comprises the following sub-steps:

accessing a head-related transfer function for a determined positioning of a loud-speaker relative to the first reference point;

determining the room impulse response for the position of the loudspeaker in the room;

convoluting the head-related transfer function with said room impulse response so as to obtain the transfer function from said loudspeaker to the first reference point;

repeating the steps of accessing, determining and convoluting so as to obtain the transfer function from said loudspeaker to the second reference point; and

executing the steps of accessing, determining, ~~folding~~ convoluting and repeating for each additional loudspeaker so as to obtain all the individual transfer functions.

21. (Original) A method according to claim 19, wherein the room impulse response is determined by simulating the room.